

09 08 2006

CLAIMS

What is claimed is:

(44)

1. A radiation shield comprising:
a plurality of panels formed of a radiation shielding material, the panels shaped to complement a contour of a vessel and arranged proximate a portion of the vessel; and
a plurality of seam plates, each seam plate positioned along a seam between adjacent panels and overlapping adjacent panels.
2. The radiation shield of claim 1, wherein the panels are arranged to surround an exterior surface of the vessel.
3. The radiation shield of claim 1, wherein the panels are positioned adjacent an interior surface of the vessel.
4. The radiation shield of claim 3, and further comprising an end cap formed of radiation shielding material, the end cap positioned at one end of the plurality of panels to cap an opening formed at the end of the plurality of panels.
5. The radiation shield of claim 1, and further comprising a frame wherein the vessel is at least partially disposed within the frame and the panels are coupled to the frame.
6. The radiation shield of claim 5, wherein the frame is mounted to the vessel.
7. The radiation shield of claim 5, wherein the vessel is supported by a base and the frame is mounted to the base.
8. The radiation shield of claim 1, and further comprising a supplemental shield formed of a radiation shielding material and selectively coupled to the frame, the supplemental shield being positioned relative to the plurality of panels wherein the plurality of panels are positioned between the supplemental shield and the vessel.
9. The radiation shield of claim 8 wherein the supplemental shield includes a lead wool blanket.
10. The radiation shield of claim 8 wherein the supplemental shield includes a plurality of panels.

11. The radiation shield of claim 1, wherein each plate member has a first edge and a second edge and the seam plate is integrally formed with the first edge of the respective panel to overlap the adjacent panel.
12. The radiation shield of claim 1, and further comprising a door shield formed of a radiation shielding material and coupled to an exterior surface of a door of the vessel.
13. The radiation shield of claim 1 wherein the panel includes a lead shield encased in stainless steel.
14. A device containment apparatus comprising:
 - a vessel for storing a radioactive device, the vessel including an outer wall defining an interior area;
 - a shield formed of radiation shielding material, the shield positioned adjacent the vessel for minimizing dispersal of radioactive material from the interior area of the vessel.
15. The device containment apparatus of claim 14, wherein the shield is positioned and arranged to surround an exterior surface of the outer wall.
16. The device containment apparatus of claim 15, wherein the vessel is supported by a base and the shield is mounted to the base.
17. The device containment apparatus of claim 14, wherein the shield is positioned adjacent an interior surface of the outer wall.
18. The device containment apparatus of claim 14, wherein the shield includes at least one lead wool blanket.
19. The device containment apparatus of claim 14, wherein the shield includes a plurality of panels coupled together and shaped to complement a contour of the vessel.
20. The device containment apparatus of claim 19, and further comprising a plurality of seam plates formed of radiation shielding material, each seam plate coupled to adjacent panels to overlap a seam between adjacent panels.
21. The device containment apparatus of claim 19, and further comprising an end cap formed of radiation shielding material, the end positioned at one end of the plurality of panels to cap an opening formed at the end of the plurality of panels..

22. The device containment apparatus of claim 19, wherein the shield includes a lead core encased in stainless steel.
23. The device containment apparatus of claim 14, wherein the shield is attached to the vessel.
24. The device containment apparatus of claim 14, and further comprising a frame wherein the vessel is at least partially disposed within the frame and the panels are coupled to the frame.
25. The device containment apparatus of claim 14, and further comprising a supplemental shield formed of a radiation shielding material and selectively positioned relative to the shield wherein the shield is positioned between the supplemental shield and the vessel.
26. A device containment apparatus for storing an explosive device and minimizing dispersal of radioactive material, the device containment apparatus comprising:
 - a vessel including an outer wall defining an interior area;
 - an opening through the outer wall for accessing the interior area;
 - a door providing access to the interior area of the vessel; and
 - a radiation shield formed of a radiation shielding material and positioned adjacent to a portion of the vessel.
27. The device containment apparatus of claim 26, wherein the radiation shield is positioned and arranged to surround an exterior surface of the vessel.
28. The device containment apparatus of claim 26, wherein the radiation shield is positioned within the interior area and adjacent an interior surface of the vessel.
29. The device containment apparatus of claim 26 wherein the radiation shield comprises a plurality of panels coupled together and shaped to complement a contour of the vessel.
30. The device containment apparatus of claim 29, wherein each panel overlaps with an adjacent panel to prevent line of sight radiation.
31. The device containment apparatus of claim 29, and further comprising a seam plate positioned along a seam between adjacent panels and overlapping adjacent panels.

32. The device containment apparatus of claim 29, and further comprising an end cap formed of radiation shielding material, the end cap positioned at one end of the plurality of panels to cap an opening formed at the end of the plurality of panels.
33. The device containment apparatus of claim 26, and further comprising a frame wherein the vessel is at least partially disposed within the frame and the radiation shield is coupled to the frame.
34. The device containment apparatus of claim 33, wherein the frame is mounted to the vessel.
35. The device containment apparatus of claim 26, wherein the vessel is supported by a base and the radiation shield is mounted to the base.
36. The device containment apparatus of claim 26 wherein the radiation shield includes a lead core substantially covered by a casing.
37. The device containment apparatus of claim 26, and further comprising a door shield formed of radiation shielding material, the door shield coupled to an exterior surface of the door.
38. The device containment apparatus of claim 26, and further comprising a supplemental radiation shield selectively positioned relative to the radiation shield, wherein the radiation shield is positioned between the supplemental radiation shield and the vessel.
39. A method for using a device containment vessel to reduce exposure to radioactive material, the method comprising:
- providing a device containment vessel including an outer wall defining an interior area, an opening through the outer wall for accessing the interior area, and a door providing access to the interior area of the vessel;
- positioning a shield adjacent the outer wall of the vessel, the shield being formed of a radiation shielding material; and
- placing an explosive device containing radioactive material in the interior area of the device containment vessel wherein the shield minimizes dispersal of radiation from the explosive device.

40. The method of claim 39, and further comprising detonating the explosive device within the device containment vessel wherein the shield minimizes dispersal of radiation from the explosive device.
41. The method of claim 39 wherein positioning the shield comprises positioning the shield adjacent an exterior surface of the outer wall wherein the shield surrounds a portion of the vessel.
42. The method of claim 39 wherein positioning the shield comprises positioning the shield within the interior area and adjacent an interior surface of the outer wall.

09 08 2006

ABSTRACT

(44)

A device containment apparatus includes a vessel for storing a radioactive explosive device. The vessel includes an outer wall defining an interior area. A shield formed of radiation shielding material is positioned adjacent the vessel for minimizing dispersal of radioactive material from the interior area of the vessel.